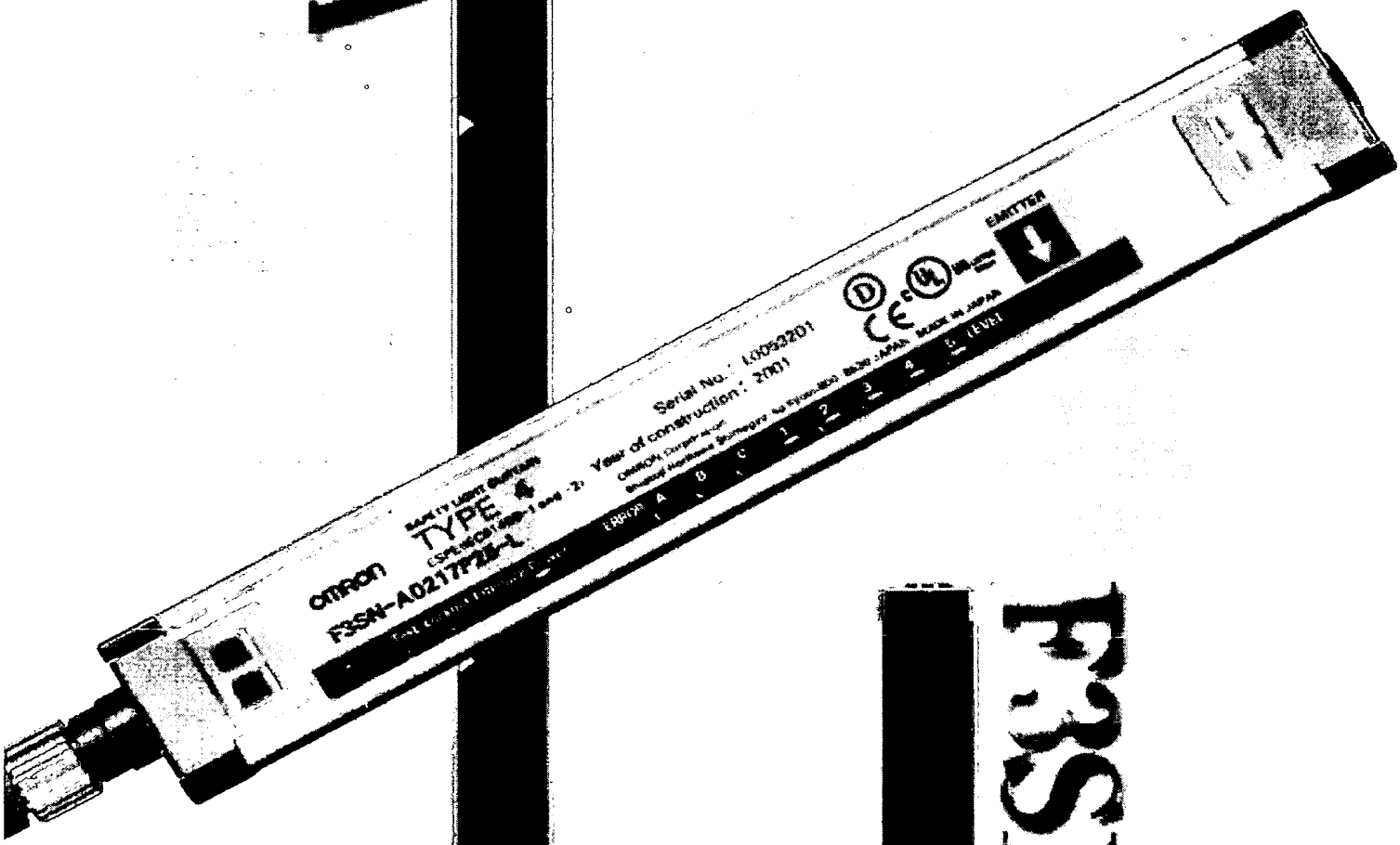
OMRON

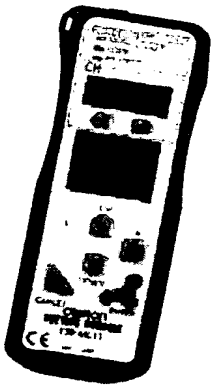
F3SN-A

Series-Connection Models for Type2 F3SN-B have been added

The gold color shows our confidence in the safety we provide.

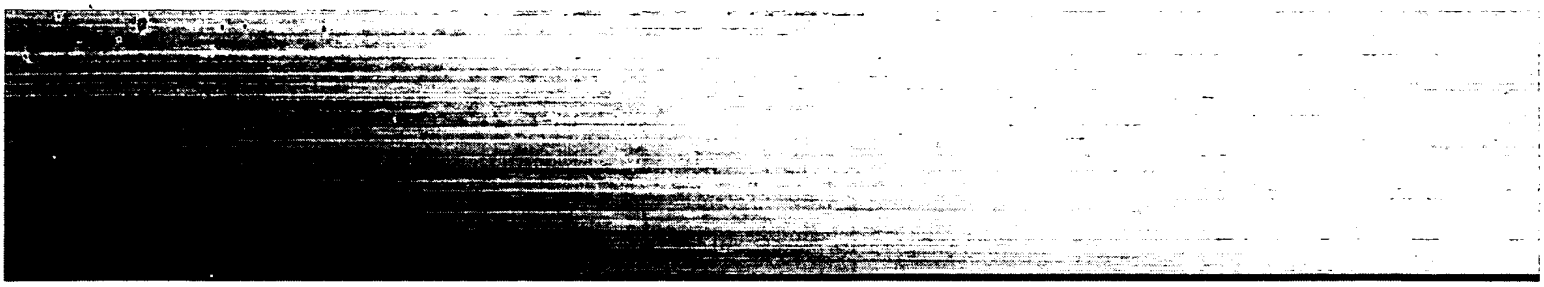


F3SN-B



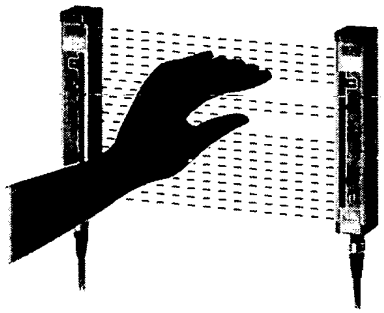
SAFETY OMRON

The red light beams are intended only to express the light source. The beams are not actually visible.



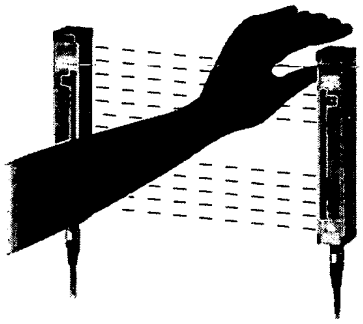
F3SN-A□□□□P14

- Operating range: 7 m
  Detection capability: 14 mm dia. (Beam gap: 9 mm)
  Protective height: 189 to 1125 mm



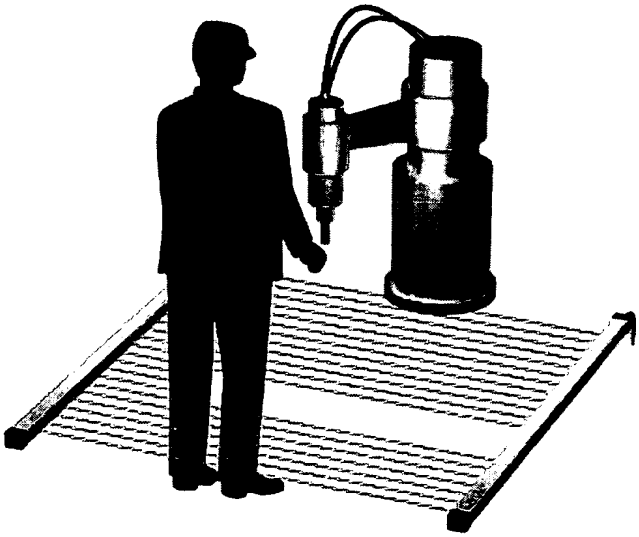
F3SN-A□□□□P25
F3SN-B□□□□P25

- Operating range: 10 m
- Detection capability: 25 mm dia. (Beam gap: 15 mm)
- Protective height: 217 to 1822 mm

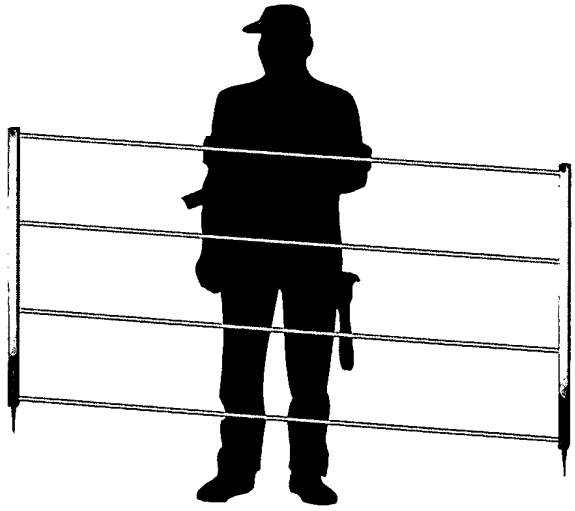


F3SN-A□□□□P40/P70
F3SN-B□□□□P40/P70

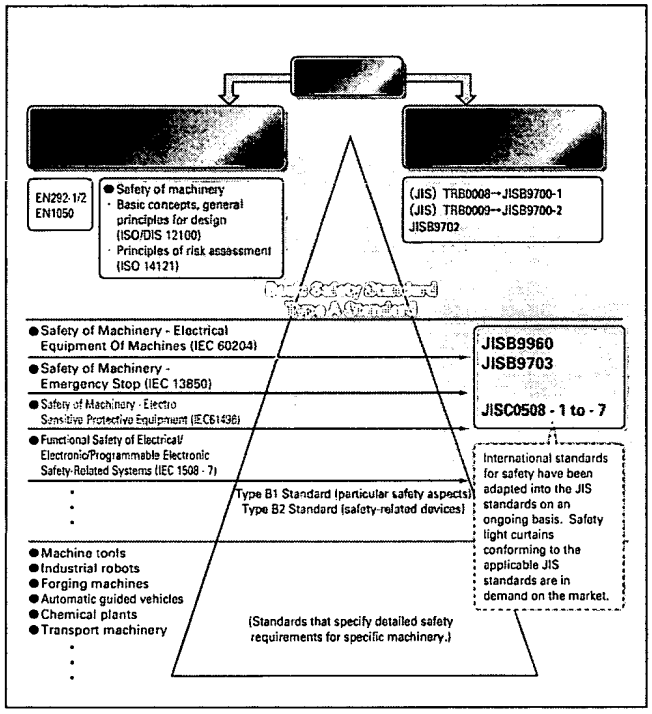
- Operating range: 10 m
- Detection capability: 40 mm dia. (Beam gap: 30 mm)
  70 mm dia. (Beam gap: 60 mm)
  Protective height: F3SN-A: 217 to 1822 mm
  F3SN-B: 217 to 1777 mm



- Operating range: 10 m
- No. of beams: 4 beams with beam gap of 300 mm



International Standards for Safety of Machinery (ISO12100) have been Adapted into the JIS Standards.



Conforms to Global Safety Standards for Safety Sensors

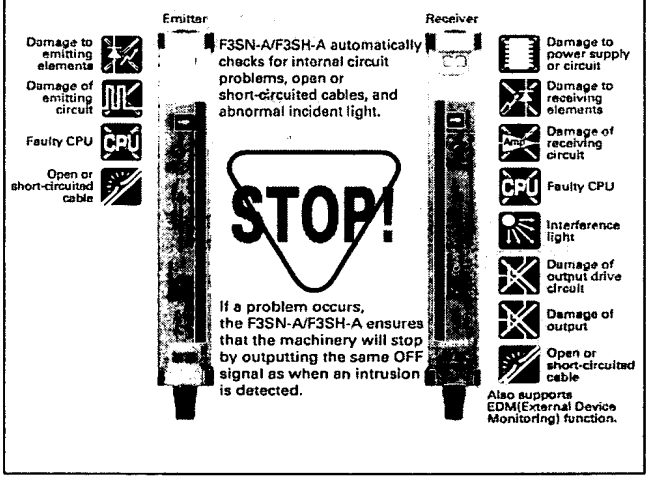
Conforms to EU Machinery Directives

Certification for United States and Canada from UL in the United States

Complete Safety Design

Output turns OFF via self diagnostics.

Safety Design of F3SN-A

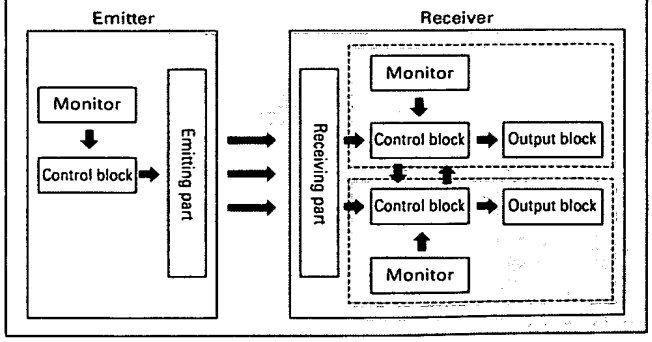


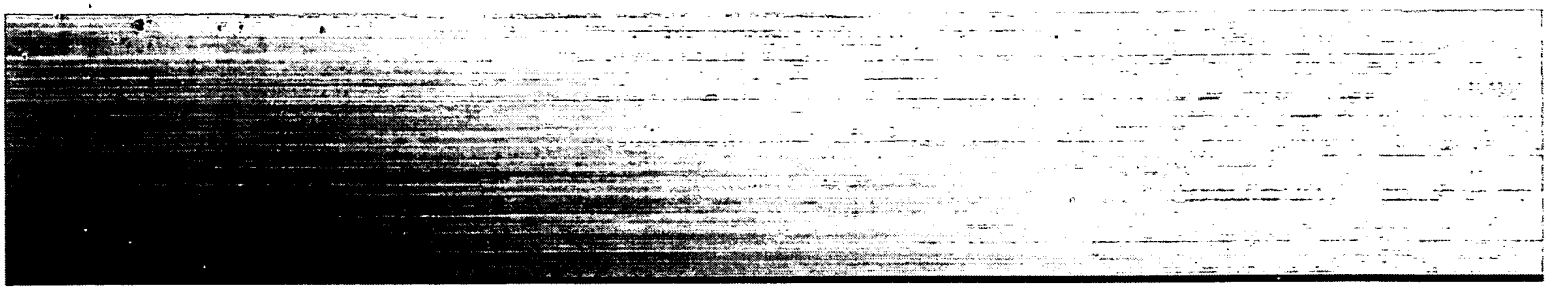
Pursuing safety with the highest level of safety design and FMEA

We pursued the safety of F3SN-A/F3SH-A to the limit with the mutual check of two CPUs, safe design by dual circuits of signal control and output, and FMEA*, which verifies the safety of the operations.

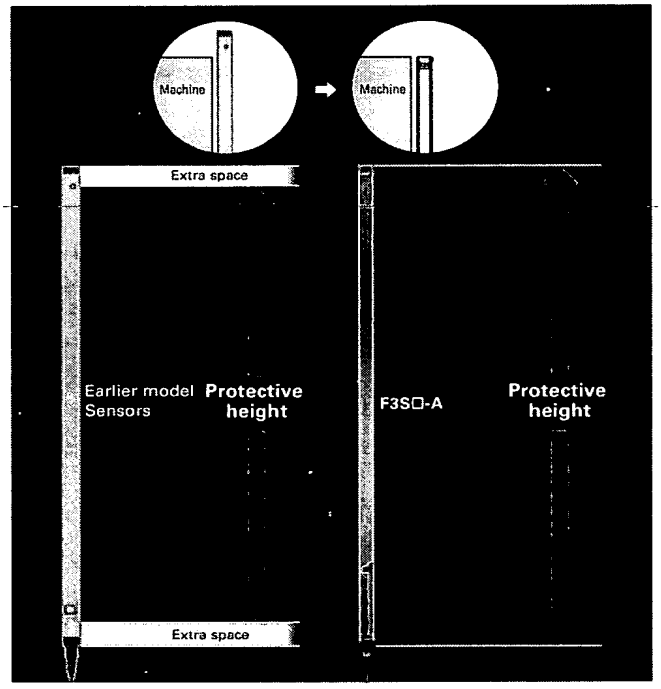
*FMEA : Failure Mode & Effects Analysis

Block diagram of the circuit



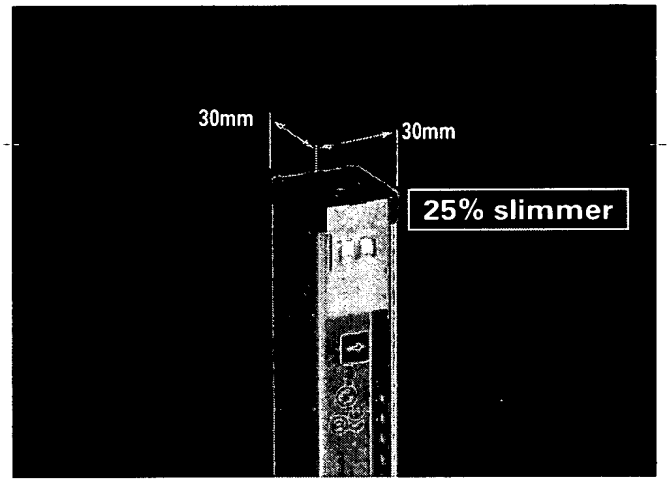


Same Protective Height and Sensor Length Limits Extra Space to a Minimum.



Compact Sensor

OMRON has successfully developed a compact sensor surface area (30×30 mm) in a Type 4 Safety Light Curtain with built-in amp. The new F3SN-A/F3SH-A is 25% smaller than earlier OMRON models.

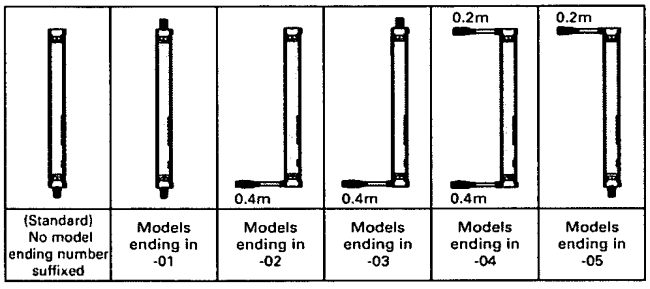


Select the Perfect Length

Select a detection capability of either 14-mm diameter (beam gap: 9 mm) or 25-mm diameter (beam gap: 15mm). For the 14-mm diameter type, OMRON has created 53 models, at 18-mm intervals (all odd-numbered beams from 21 beams = 189 mm to 125 beams = 1125 mm). For the 25-mm diameter type, OMRON has created 108 models, at 15-mm intervals (all beams from 13 beams = 217 mm to 120 beams = 1822 mm).

Expanded Variation of Connector Configurations NEW

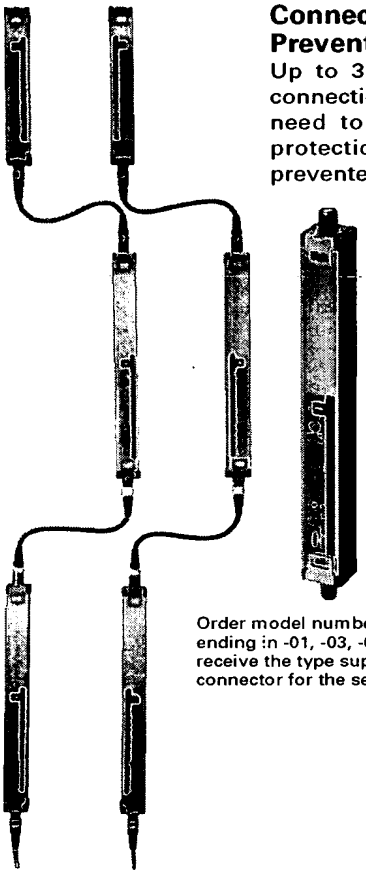
Various types of sensors can be manufactured as described below depending on their mounting positions on the equipment or machine. (Consult with your dealer or OMRON representative.)



(Standard) No model ending number suffixed	Models ending in -01	Models ending in -02	Models ending in -03	Models ending in -04	Models ending in -05

All types are also available for F3SN-B

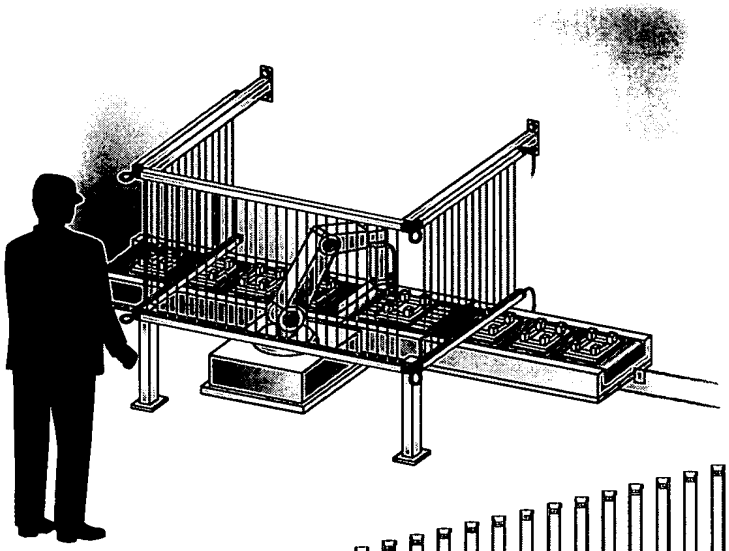
25-mm type
108 models (for F3SN-A)

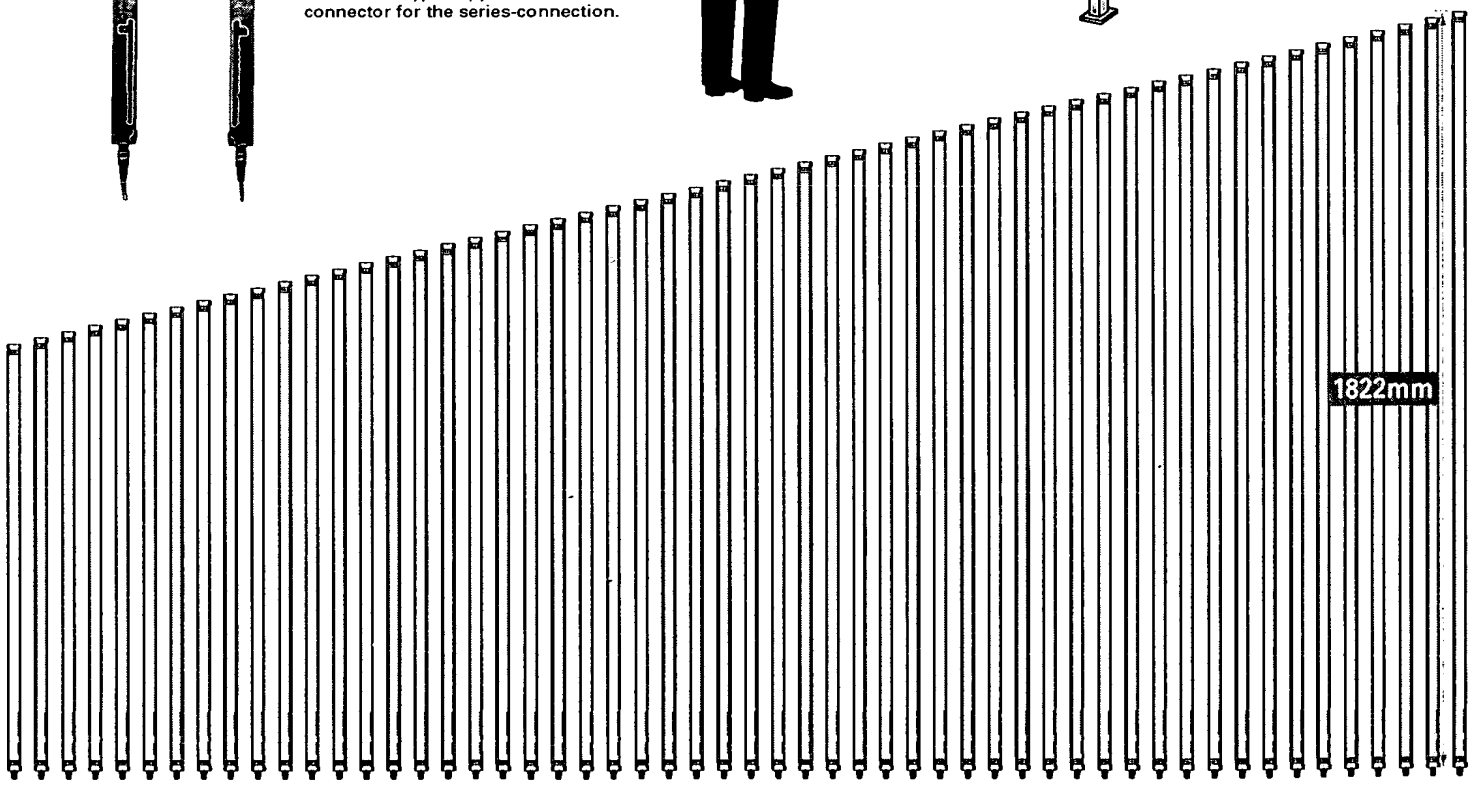


Connect up to 3 Sets in Series.
Prevents Mutual Interference.

Up to 3 sets can be connected in series by using both the standard model and a series-connection model with a connector. You can create a 3-set system by just wiring one set – no need to wire three sets separately as was required with earlier models. This facilitates protection for all dangerous machine and device surfaces. Mutual interference is also prevented.

Order model number ending :n -01, -03, -04, or -05 to receive the type supplied with the connector for the series-connection.





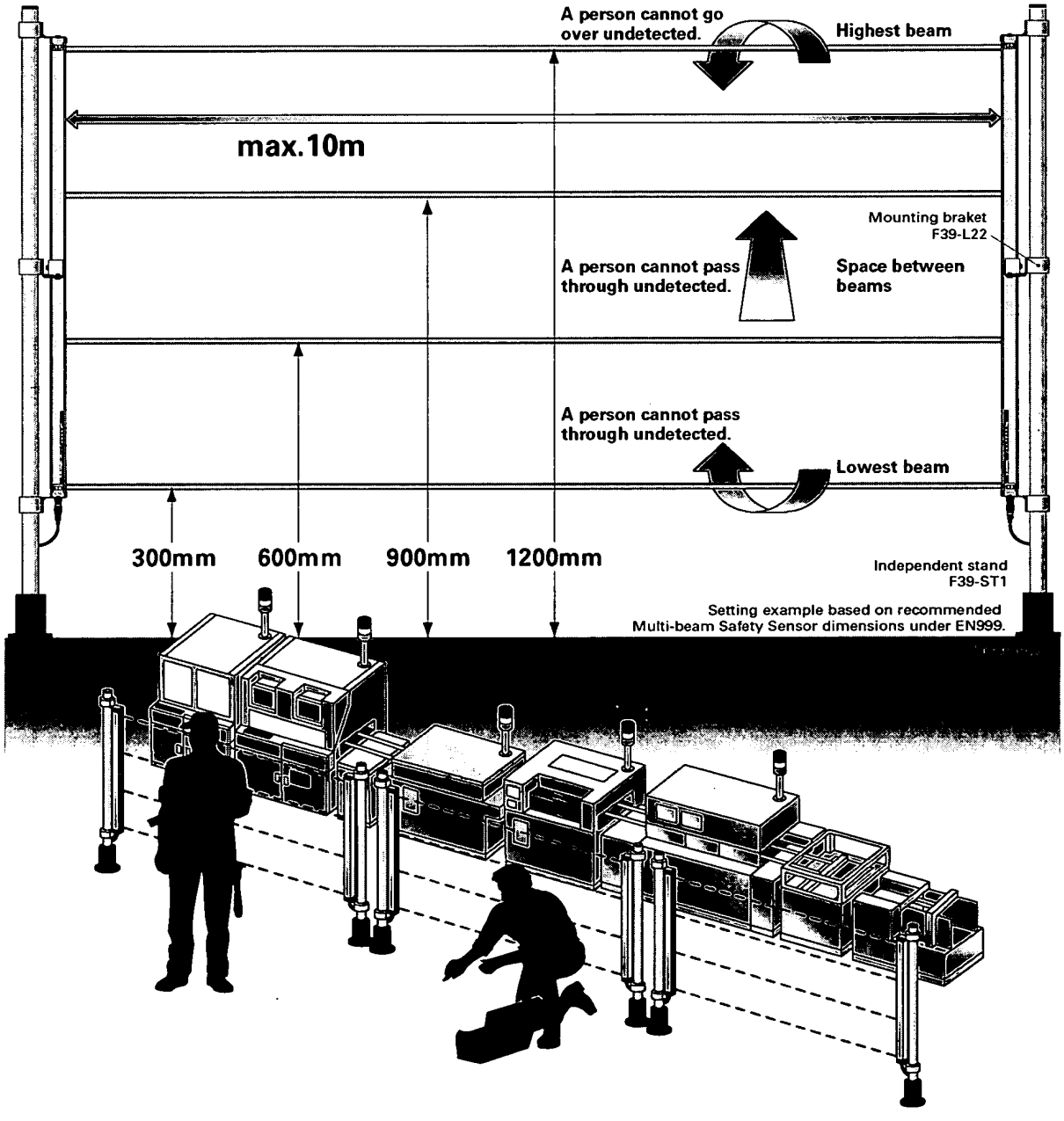
F3SH-A
Multi-beam Safety Sensor

The F3SH-A Enables Human Body Detection using the 4-beam Dimensions Recommended by EN Standards.

300-mm gap using 4 beams. Detects whole-body intrusion.

The EN999 Standard concerns machine safety, in particular the positioning of protective devices in relation to the approach speed of part of a human body. The values in the table indicate the heights from the reference surface (such as the floor) for each beam of a 4-optical-beam sensor recommended as most effective under EN999. The F3SH-A beam gap matches the recommended dimensions and can, therefore, detect intrusion under the lowest beam or over the highest beam, for settings shown in the following diagram.

No. of beams	Height from basic surface, such as floor (in mm)
4	300, 600, 900, 1200



Making Safety Easier to Work with

The Sensor Unit also has a Variety of Safety Functions. Suitable for All Kinds of Safety Circuit Systems.

Interlock functions
- Auto reset/Manual reset selection

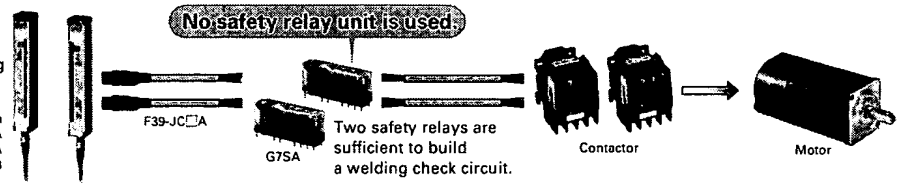
EDM (External Device Monitoring) function

Desired Safety Circuit can be Selected to Comply with Basic Safety Standards.

Category 4 circuits (F3SN-A/F3SH-A) and category 2 circuits (F3SN-B) can be built without using relay units (using two safety relays, instead).

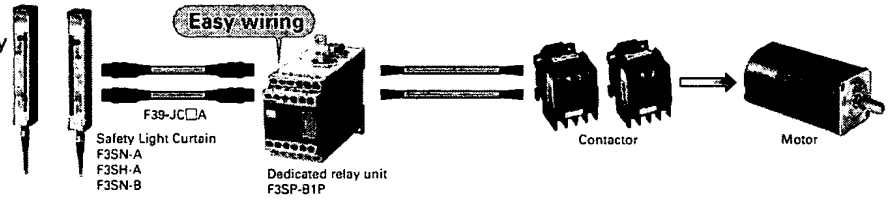
- Cost and space saving

  An external relay monitor system is built in, requiring no safety relay unit.



- Saves wiring materials and time, enabling easy maintenance

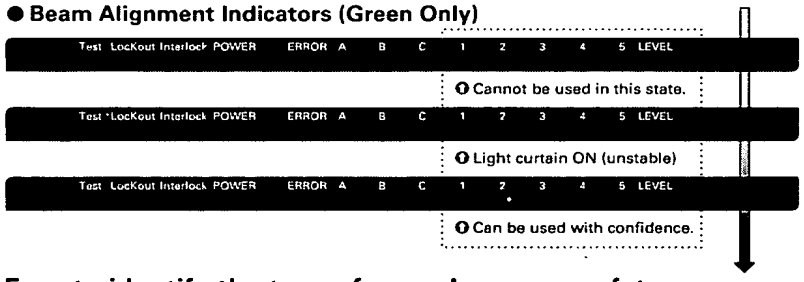
  Cables with connectors at both ends enable single-action electrical connection, eliminating wiring errors.

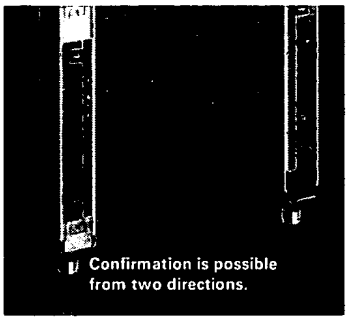


Indicator Bar Included. Even Easier to Use.

Easy beam alignment using indicators. Reliable installation.

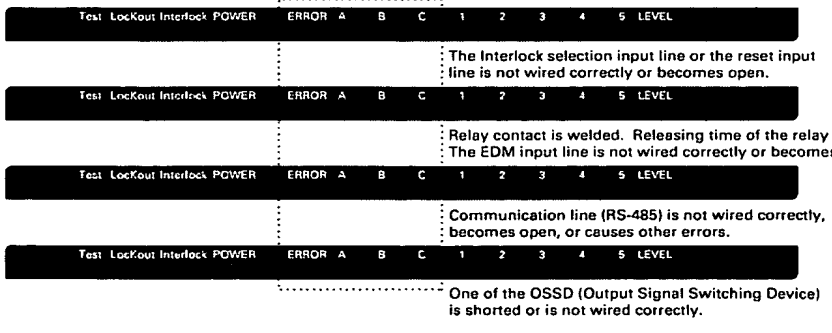
- Beam Alignment Indicators (Green Only)





Easy to identify the type of error. Improves safety.

Example Error Display (Red Only)

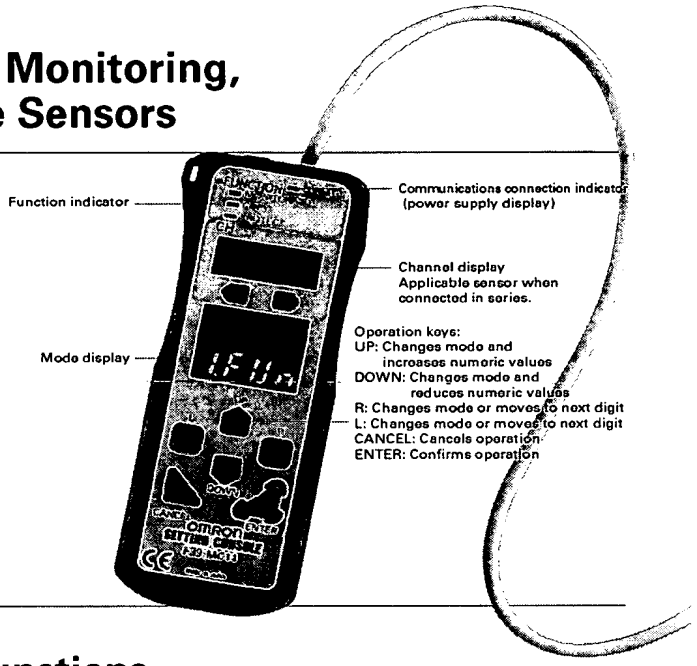


Setting Console (F3SN-A and F3SH-A only)

All Functions Can be Set Easily and Safely

Easy Function Settings, Monitoring, and Copying to Multiple Sensors

In earlier sensor models, function settings were made using an internal DIP switch, and switch operation used to be very difficult after sensor was mounted.
That's why we added a setting console.
Just connect the sensor cable when it is time to make the function settings and you can easily make blanking and all other settings directly from the setting console.



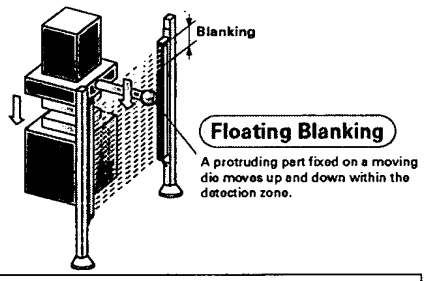
Password Protection Prevents Inadvertent Changes to Settings.

Two Types of Blanking Functions

Blanking functions change the safety light curtain detection patterns.

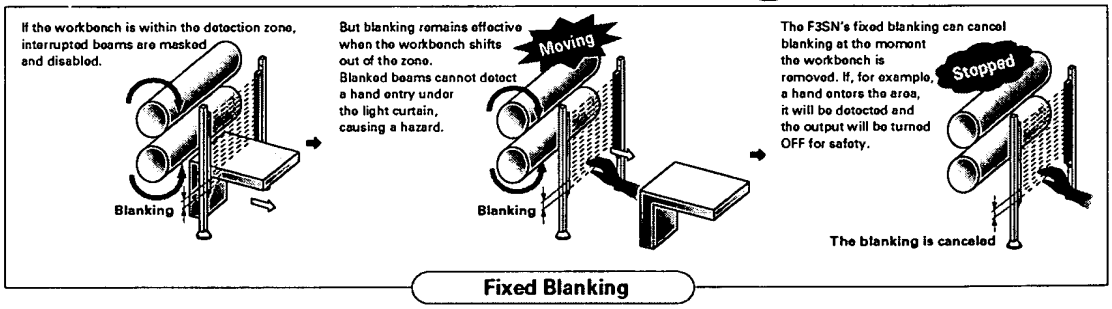
Basic Pattern 1: Floating Blanking

Disables detection for 1, 2, or 3 non-specific beams. Output is turned OFF if more than the specified number of beams are obstructed. Ideal for applications where a robot arm for removing workpieces passes through the safety light curtain detection zone at irregular intervals.



Basic Pattern 2: Fixed Blanking

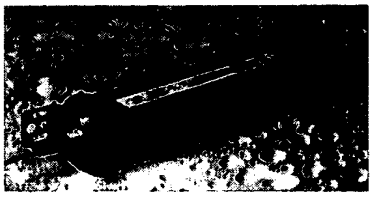
Uses a teaching technique to mask and disable specific beams. Ideal for applications where part of a machine or jig is always inside the fixed detection zone of the safety light curtain.



Other Function Settings from the Setting Console

Auxiliary Output: Can select outputs such as Dark-ON, Light-ON, Light diagnosis, and Lockout.
External Indicator Output: Can select external indicator output from Dark-ON, Light-ON, Light diagnosis, and Lockout.
EDM (External Device Monitoring) function: Monitors for external relay contact welding.
Interlock Function: Sets interlock for when power is turned ON or the system is restarted.
Copy Settings Function: Copies sensor settings to another sensor.
Protect Function: Prohibits or limits changes to sensor settings.

Line-up of Various Types of Accessories Expand Applications of Safety Light Curtains

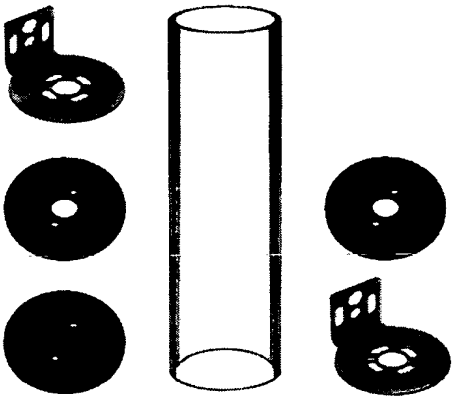


F39-HP Environment-resistant Enclosures

- Protective construction of each sensor body is IP65-rated.
  These optional enclosures assure IP67 rating.
- These enclosures are made of acrylic resin.
  Mounting brackets are made of stainless steel (SUS316) and gaskets are made of NBR60.

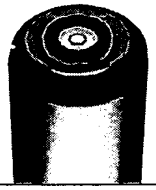
Components included in one set

- Bracket: 2 pcs.
- Enclosure: 1 pc.
- Gasket
  2 pcs. for sensor with connector
  1 pc. for sensor without connector
- Others
  Hexagon socket head screw: 4 pcs.



F39-ST1 Multi-beam Sensor Support Stand

Use of a level facilitates vertical setting of sensors.



Four adjustment screws at the base facilitate support stand angle adjustment.

- Best suited to mount the F3SH multi-beam sensor in a free-standing manner.
- Mounting height recommended by EN999 can be realized without any modification.
- Four adjustment screws at the base facilitate support stand angle adjustment.
- Also useful for installing the F3SS single-beam safety sensor (the F39-LSP bracket should be used).
- Support stands are provided with reference holes for fitting the specially designed mounting brackets. Height above the reference plane of each beam, as recommended by EN999, can be achieved without any modification.

Note : Anchor bolts for fixing the support stands on the floor should be embedded by each customer.

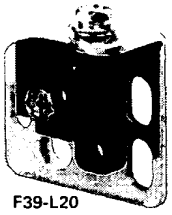
F39-L22 Mounting Bracket for the F39-ST1 Stand

Dedicated bracket for the F39-ST1 multi-beam sensor support stand.

F39-L19/F39-L20 Free-location Bracket

- The F39-L19/F39-L20 are mounting brackets of innovative new design to facilitate the location of safety light curtains at any desired position without using upper and lower bracket units.
  Since the new brackets do not require upper and lower units, they are useful in cases when there is no space for fitting brackets at the upper and lower ends of the sensors or when the sensors have to be arranged in an L or a U configuration.

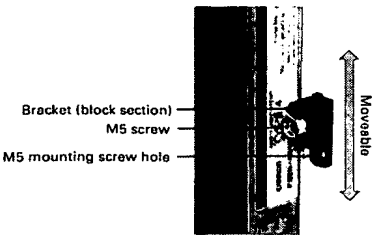
F39-L19



F39-L20

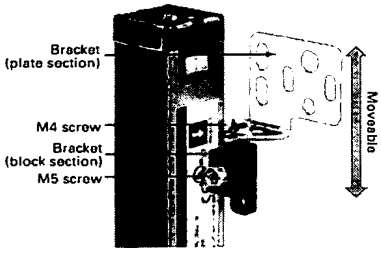
F39-L19 Specifications

Mounting: specially designed for back mounting
Distance to mounting face: 7 mm
Recommended distance between brackets: 670 mm max.
Beam adjustment: impossible
(in the direction of rotation)

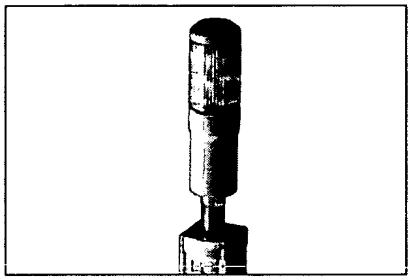


F39-L20 Specifications

Mounting: back or side mounting can be selected
Distance to mounting face: approx.15 mm
Recommended distance between brackets: 400mm max.
Beam adjustment: possible

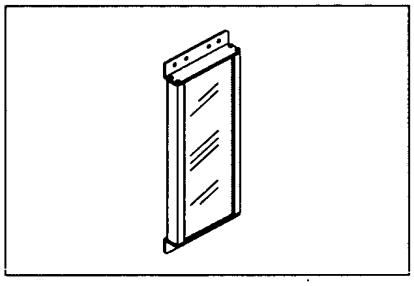


Other accessories (Optional)



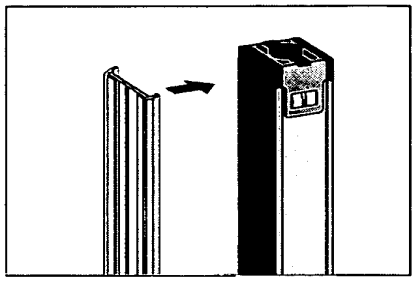
F39-A External Indicators

Requires series-connection models (models ending in –01) for connection.
Indicator timing, i.e., the signal type, can be selected using the setting console.
(Only Light-On Mode is available with F3SN-B)



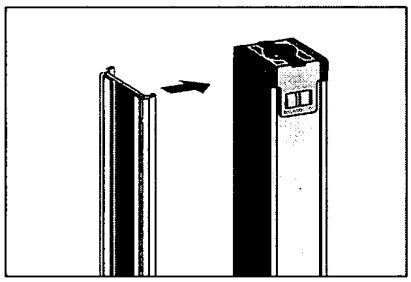
●F39-MLG Mirror

Protection in two to three planes can be provided by one pair of sensors for which a mirror is used to reflect the beam from the emitter at 90 degrees.
Use of a reflection mirror deteriorates the operating range by 12%. The mounting bracket attached to the sensor as an accessory can be used for fixing the sensor to the F39-ST1 support stand.



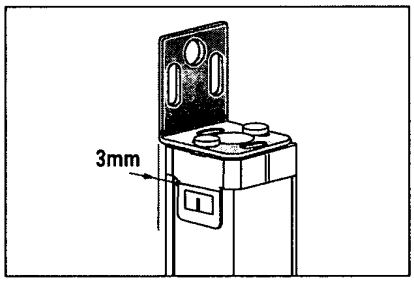
●F39-HN Spatter Protection Cover

For protection from spatter generated by welding machine.



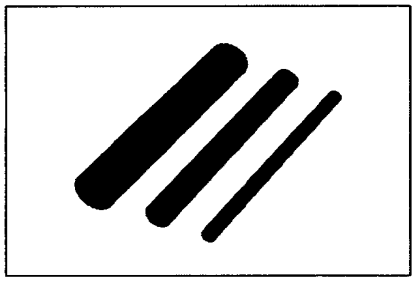
F39-HS
Spatter Protection Slit Covers

For preventing malfunctioning caused by light disturbance or stray light.
Slit width:
1.15 mm type (F39-HS□□□□-A)
0.6 mm type (F39-HS□□□□-B)



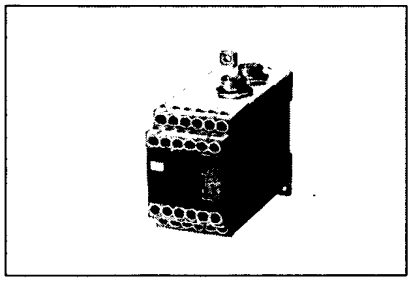
●F39-L18
Wall Mounting Bracket

Brackets that allow mounting of sensors with a gap of 3 mm.
Should not be used in combination with intermediate mounting brackets.



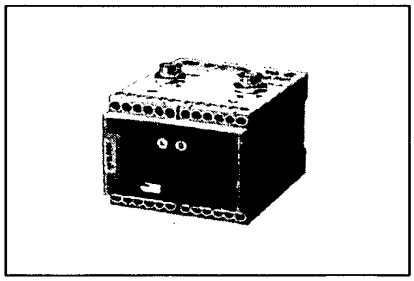
●F39-TR Test Rod

Used for checking when floating blanking function is used.



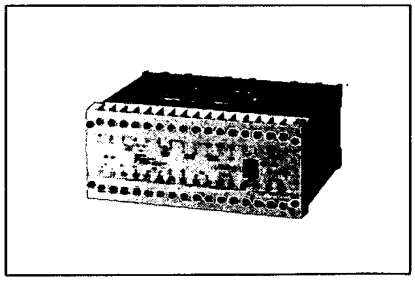
●F3SP-B1P Control Unit

Sensors can be wired by a single action using a cable with connectors attached at both ends.
Safety circuits in category 4 can be created by combining this unit with the F3SN-A or F3SH-A, and circuits in category 2 can be created by combining this unit with the F3SN-B.



●G9SA-300-SC
Safety Relay Unit

An emergency stop switch can be connected, in addition to the F3SP-B1P's function.



●F3SP-U2P Muting Controller

A controller provided with a "muting" function. Muting is effective for disabling the safety function when a workpiece or pallet is passed through the operation range of the sensor.

OMRON

OMRON Corporation
Industrial Automation Company

Industrial Sensors Division
Sensing Devices and Components Division H.Q.
Shiokoji Horikawa, Shimogyo-ku,
Kyoto, 600-8530 Japan
Tel : (81)75-344-7068 / Fax : (81)75-344-7107

Regional Headquarters

OMRON EUROPE B.V.
Sensor Business Unit
Carl-Benz-Str. 4, D-71154 Nufringen,
Germany
Tel : (49)7032-811-0 / Fax : (49)7032-811-199

OMRON ELECTRONICS LLC
1 East Commerce Drive, Schaumburg, IL 60173
U.S.A.
Tel : (1)847-843-7900 / Fax : (1)847-843-8568

OMRON ASIA PACIFIC PTE. LTD.
83 Clemenceau Avenue,
#11-01, UE Square,
239920 Singapore
Tel : (65)835-3011 / Fax : (65)835-2711

OMRON CHINA CO., LTD.
BEIJING OFFICE
Room 1028, Office Building,
Beijing Capital Times Square,
No.88 West Chang'an Road,
Beijing, 100031 China
Tel : (86)10-8391-3005 / Fax : (86)10-8391-3688

Authorized Distributor:

Cat. No. E321-E1-3

Note:Specifications subject to change without notice.

0103- (0401)